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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/844,075

04/30/2001

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A7755

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7590

05/06/2005

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EXAMINER

LE, VIET Q


ART UNIT

PAPER NUMBER

2667

DATE MAILED: 05/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/844,075	Applicant(s) GOKHALE ET AL. 	
	Examiner Viet Q. Le	Art Unit 2667	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on December 06, 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 & 5-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-3 and 5-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 8-10 & 16-19 & 21-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falk et al. (U.S. 6,580,716), hereinafter referred to as Falk in view of Fichou et al (U.S. 5,602,830), hereinafter referred to as Fichou and in further view of Everhart et al. (U.S 4,578,531), hereinafter referred to as Everhart.

Regarding claim 8, Falk disclosed an apparatus for performing inter-working between an ATM switch and a satellite modem of a gateway interconnecting a terrestrial ATM network (Figure 1, block 102) and a satellite ATM network (Figure 1, block 104), said ATM switch being communicably linked to said terrestrial ATM network and said satellite modem being communicably linked to said satellite ATM network, the apparatus comprising:

A congestion control unit for performing congestion control in the satellite network and back-pressuring terrestrial data traffic based on a current data traffic load

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in the satellite network (Column 2, lines 1-4; column 4, lines 10-19. Congestion control can be implemented at the gateway);

A demand-assigned multiple access (DAMA) control unit for allocating satellite bandwidth on demand to the gateway based on a current data traffic carried by the gateway (Column 2, lines 44-49; column 4, lines 10-19. Bandwidth allocation can be implemented at the gateway);

A signaling inter-working unit for providing signaling inter-working between a signaling protocol of the terrestrial network and a signaling protocol of the satellite network (Column 30-34; column 4, lines 10-19. Signaling protocol translation is needed between gateway and satellite stations. This function can be implemented at the gateway).

Falk, however, fails to disclose a cell delay variation removal unit for reducing cell delay variation on incoming data from the satellite network.

Fichou disclosed a cell delay variation removal unit for reducing cell delay variation on incoming data (Column 5, lines 65-68; column 6, lines 40-67; column 7, lines 13-14).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to remove cell delay variation, the motivation being that cell delay variation of incoming data from the satellite network is a major problem because cells having to go through different buffers and cells arriving at different times causing delay

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and jitter causing major problem in voice communication and cell delay variation need to be removed);

Falk, however, fails to disclose a data encryption and decryption unit for performing encryption of data received from the terrestrial network, and decryption of received data from the satellite network.

Everhart disclosed a data encryption and decryption unit and method for security purposes (See column 1, 1-67; column 2, lines 1-50).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to utilize data encryption and decryption on data, the motivation being that by using encryption and decryption, one can provide secure communication in satellite communication.

Regarding claim 9, Falk disclosed the congestion control unit receiving congestion messages from the satellite network via the satellite modem and regulates a rate of transmission of data to each satellite downlink beam from the satellite network (Column 2, lines 1-4. Part of the establishment and management of traffic flows between satellite network and terrestrial network, there must be a congestion feedback from the satellite network through the form messages received from satellite network).

Regarding claim 10, Falk disclosed a traffic scheduler for monitoring queued traffic, a negotiated traffic guarantee for each ATM virtual connection (Column 1, lines 35-67; column 2, lines 5-34; column 4, lines 10-19. Service contract between users and network need to followed. UPC or scheduler will make sure that these service contract

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is followed through), current congestion in each satellite downlink beam, and the total bandwidth available for transmission of traffic to the satellite (Column 2, lines 1-5), determining the rate of transmission of data traffic satellite downlink beam, guaranteeing a minimum rate based on the ATM traffic contract (Column 1, lines 58-61), regulating the rate of flow of excess traffic (Column 1, lines 58-61), using a separate one of said queues for multicast traffic (Column 4, lines 31-39), and controlling the rate of transmission of multicast traffic based on overall satellite system load (Column 2, lines 1-5) (Column 4, lines 10-19. Any of these functions can be implemented either at the gateway or at the satellite station. In this reference, all these satellite related functions could be implemented at the gateway to save the uplink bandwidth usage).

Falk disclosed a plurality of queues for each downlink satellite beam for each ATM class of service (See column 4, lines 31-40; column 4, lines 10-19).

Regarding claim 16, Falk disclosed the apparatus, wherein bandwidth unit requests bandwidth from a Network Control Center which manages network resources based on the current data traffic load at the gateway, receives bandwidth Allocations from the Network Control Center, and provides the bandwidth allocations to said traffic scheduler (Column 2, lines 1-4, 44-49, 55-67; column 4, lines 10-16. Any of the user or control plane ATM functions can be implemented at either the NOC, the UET or at the satellite station. Bandwidth unit can reside at the gateway and the NOC can manage the network resources);

Regarding claim 17, Falk disclosed distributed ATM switching and satellite related functions between the gateway, satellite and the NOC. Falk also disclosed the

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bandwidth unit informing the ATM switch of said gateway bandwidth changes received from the Network Control Center so that the ATM switch limits the flow of data traffic to the satellite network (column 2, lines 1-4), and informs the satellite modem of the allocated bandwidth so the satellite modem transmits on correct radio frequencies an appropriate time (Column 2, lines 1-4, 44-49, 55-67; column 4, lines 10-16. Any of the user or control plane ATM functions can be implemented at either the NOC, the UET or at the satellite station. Bandwidth unit can reside at the gateway and the NOC can manage the network resources).

Regarding claim 18, Falk, however, fails to teach the inter-working unit would comprise a cell delay variation removal unit for reducing cell delay variation incoming data from the satellite network.

Fichou disclosed a cell delay variation removal unit for reducing cell delay variation on incoming data (Column 5, lines 65-68; column 6, lines 40-67; column 7, lines 13-14).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to remove cell delay variation for incoming data from the satellite network, the motivation being that cell delay variation of incoming data from the satellite network is a major problem because cells having to go through different buffers and cells arriving at different times causing delay and jitter causing major problem in voice communication and cell delay variation need to be removed);

Regarding claim 19, Falk, however, fails to disclose the cell delay variation removal unit shapes data traffic based on parameters for each ATM virtual connection

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which are obtained by intercepting a virtual connection traffic descriptor which is exchanged between the ATM switch of the gateway and a Network Control Center during call setup.

Fichou disclosed a method removing the cell delay variation using traffic descriptors (Column 8, lines 63-67; column 9, lines 1-27).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to remove cell delay variation using traffic descriptors, the motivation being that by removing cell delay variation will improve traffic bit error rate and performance for satellite communication.

Regarding claim 21, Falk, however, fails to teach the inter-working unit would comprise a data encryption and decryption unit for performing encryption of data received from the terrestrial network, and decryption of received data from the satellite network.

Everhart disclosed a data encryption and decryption unit and method for security purposes (See column 1, 1-67; column 2, lines 1-50).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to utilize data encryption and decryption on data, the motivation being that by using encryption and decryption, one can provide secure communication in satellite communication.

Regarding claim 22, Falk, however, fails to disclose a data encryption and decryption method using key information for data security by intercepting call signaling

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information exchanged during call setup between the ATM switch of the gateway and a Network Control Center.

Everhart disclosed a data encryption and decryption method using keys during call setup (Column 1, lines 1-67; column 2, lines 1-49).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to utilize data encryption and decryption on data, the motivation being that by using encryption and decryption, one can provide secure communication in satellite communication.

Regarding claim 23, Falk disclosed the signal inter-working unit provides inter-working between terrestrial network signaling protocols and satellite network signaling protocols (Column 2, 30-34; column 4, lines 10-19. Signaling protocol function is need between terrestrial and satellite network. This function can be implemented at the gateway station).

Regarding claim 24, Falk disclosed the signal inter-working unit performs ciphering of signaling data within the satellite network (Column 4, lines 10-19. All satellite related function could be conducted at the gateway).

Regarding claim 25, Falk disclosed the signal inter-working unit provides authentication of the gateway within the satellite network (Column 1, lines 19-22; column 4, lines 10-19. Cell header will determine sender and destination addresses).

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3. Claim 11 & 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falk, Fichou, Everhart and in view of Thomas et al. (U.S. 5,867,480), hereinafter referred to as Thomas.

Regarding claim 11, Falk, Fichou and Everhart disclosed a terrestrial and the satellite communication using ATM switches as described above.

Falk, Fichou and Everhart, however, fails to disclose the congestion control unit regulates the flow of data traffic using an Available Bit Rate (ABR) flow control mechanism.

Thomas disclosed RM cells could be used for ABR flow control (Column 70, lines 43-44).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to utilize the ABR as a flow control mechanism, the motivation being that the ABR flow control is already included in the ATM Forum Traffic Management specification and using the same specification will make it compatible with others using the same ABR flow control mechanism.

Regarding claim 12, Falk, however, fails to disclose the congestion control unit regulates the flow of data traffic by setting an Explicit Congestion Notification (ECN) bit in Internet Protocol (IP) data packets.

Thomas disclosed users could use ECN as a network congestion control scheme (Column 72, lines 48-49).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to use ECN as a flow control mechanism, the motivation being that the ECN flow control is already included in the ATM Forum Traffic Management specification and using the same specification will make it compatible with others using the same ECN flow control mechanism.

4. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Falk, Fichou, Everhart and in further view of Boucher et al. (U.S. 6,247,060), hereinafter referred to as Boucher.

Regarding claim 13, Falk, Fichou and Everhart disclosed a terrestrial and the satellite communication using ATM switches as described in claim 8.

Falk, Fichou and Everhart, however, fails to disclose the congestion control unit regulates the flow of traffic by controlling an advertised receive window of TCP connections.

Boucher disclosed the flow of traffic can be controlled by an advertised receive window of TCP connections (Column 35, lines 23-32).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to regulates the flow of traffic by controlling an advertised receive window of TCP connections, the motivation being that an advertised receive window of TCP connections as a flow control will improve throughput.

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5. Claim 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Falk, Fichou, Everhart and in view of Lyon et al. (U.S. 6,151,299), hereinafter referred to as Lyon.

Regarding claim 14, Falk, Fichou and Everhart disclosed a terrestrial and the satellite communication using ATM switches as described above.

Falk, Fichou and Everhart, however, fails to disclose the congestion control unit regulates the flow of traffic by implementing packet discard scheme.

Lyon disclosed the congestion control using the packet discard scheme (Column 1, lines 10-22).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to use the packet discard scheme as the congestion control, the motivation being that using the packet discard scheme as the congestion control is already a market proven congestion control mechanism.

Regarding claim 15, Falk, Fichou and Everhart, however, fails to disclose the packet discard scheme would include Early Packet Discard (EPD), Partial Packet Discard (PPD) or a Random Early Discard (RED).

Lyon disclosed the congestion control using Partial Packet Discard (PPD) (Figure 1).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to use the partial packet discard (PPD) scheme as the congestion

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control, the motivation being that using the partial packet discard (PPD) scheme as the congestion control will improve the network performance.

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Falk, Fichou and Everhart and in further view of Gruber et al. (U.S. 5,450,394), hereinafter referred to as Gruber.

Regarding claim 20, Falk, Fichou and Everhart disclosed a terrestrial and the satellite communication using ATM switches as described above.

Falk, Fichou and Everhart, however, fails to disclose cell delay variation removal can be done by introducing special Operations, Administration, and Maintenance (OAM) cells containing time stamps and using the time stamps to determine time of arrival of ATM cells at the gateway

Gruber disclosed the cell delay variation removal methodology by introducing time stamps and using the time stamps to determine time of arrival of ATM cells (Column 4, lines 41-66).

It would have been obvious to one having ordinary skills in the art at the time the invention was made to remove cell delay variation using time stamps, the motivation being that by removing cell delay variation will improve traffic bit error rate and performance for satellite communication.

Conclusion

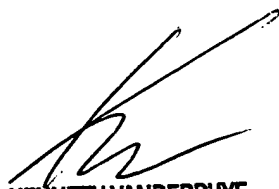
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Viet Q. Le whose telephone number is 571-272-2246.

The examiner can normally be reached on 8 AM -5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on 571-272-3078. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VL


KENNETH VANDERPUYE
PRIMARY EXAMINER